

Rocky Flats Environmental Technology Site

PRO-563-ACPR

ASBESTOS CHARACTERIZATION PROCEDURE

REVISION 0

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USE CATEGORY 3

This procedure is performed as written and need not be in hand for the performance of the described tasks
The procedure **SHALL** be available at a known location for reference.

USQD Program Review
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This procedure is a new procedure

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1.0 PURPOSE

This procedure describes the collection of asbestos samples. All thermal insulation, surfacing material, and miscellaneous materials potentially containing asbestos **SHALL** be inspected for asbestos per 40 CFR 763.86 and 5 CCR 1001-10 by a Certified Asbestos Inspector. Based upon the inspector's judgment, material may be considered to be asbestos-containing without sampling. The criteria outlined are specifically designed to provide waste management and occupational hazard information in support of decommissioning activities in buildings containing presumed or suspected asbestos-containing materials. These activities are to be conducted prior to demolition and decommissioning. In some cases these results may be used to support a final status survey.

2.0 SCOPE

This procedure applies to asbestos characterization in support of decommissioning activities at the Rocky Flats Environmental Technology Site (RFETS). This procedure was developed in accordance with 40 CFR 763, *Asbestos* and applicable state regulations. The Data Quality Objectives (DQOs) and sampling plans given in the Reconnaissance Level Characterization Plan (RLCP) **SHALL** determine the number, location, and type of samples collected. Should any doubt exist as to whether the procedures contained herein are applicable and appropriate to a specific application, the requirements cited in Section 11.0 **SHALL** be consulted prior to initiating any sampling activity.

3.0 DEFINITIONS

Friable means that the material, when dry, may be crumbled, pulverized, or reduced to powder, by hand pressure, and includes previously non-friable material after such previously non-friable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

4.0 LIMITATIONS, PRECAUTIONS, AND REQUIREMENTS

1. No activity that may cause asbestos to become airborne **SHALL** be authorized without the proper personal protective equipment and controls. Controls may include decontaminating materials, use of fixatives, surfactants, or wetting agents, and use of containments.

2. Sampling **SHALL** be carried out by an asbestos inspector certified by the Colorado Department of Public Health and Environment (CDPHE), hereafter referred to as a Certified Asbestos Inspector. This individual **SHALL** be qualified as a "competent person" as defined in 29 CFR 1926.32(f) and trained in accordance with 40 CFR 763.92(a)(2) (or equivalent) and 29 CFR 1926.1101(k)(5).

3. All personnel performing inspection, sampling, and assessment operations **SHALL** be medically qualified and monitored for asbestos exposure within a medical surveillance program as per OSHA 29 CFR 1926.1101(m) and OS&IHPM, Section 19, Asbestos Management Program.

4. An exposure assessment **SHALL** be conducted annually for asbestos sampling operations to confirm that sampling operations as they are described in this procedure do not produce levels of airborne asbestos above the Permissible Exposure Limit (PEL) of 0.1 fibers/cm³/8 hrs, as per OSHA 29 CFR 1926.1101. However, air monitoring of personnel may be performed by a Health

and Safety Specialist to obtain full-shift exposure information using integrated sampling

5 Personnel SHALL wear respirators in cases where

- the expected degree of exposure is unknown
- there are no previous exposure assessments that recorded no exposure
- work is not performed using wet methods to avoid dust generation

6 For purposes of control, sampling operations will be classified as Class III work, which includes work on thermal systems insulation and surfacing materials and where asbestos-containing material is likely to be disturbed, as per MAN-072-OS&IHPM, Section 19, Asbestos Management Program, and OSHA 29 CFR 1926.1101(g)

7 Radiological Control Technician (RCT) support may be necessary for some operations, depending upon Radiological Engineering evaluation or process knowledge

8 In accordance with 40 CFR 763 and 5 CCR 1001-10, if any one sample of a sample set representing a homogeneous medium results in a positive detection (i.e., >1% by volume), then the material is considered asbestos-containing material (ACM)

5.0 PREREQUISITE ACTIONS

The following actions **SHALL** be conducted prior to the commencement of sampling activities

1 Consult building records (such as blueprints, engineering drawings, and specifications) for documentation of use of asbestos in construction or remodeling of the building under characterization. Maintenance records, asbestos abatement records, blueprints, engineering and architectural drawings, as-built diagrams, specifications and grade names for materials used in construction, and emergency response documents are examples of data sources. To determine document numbers for engineering drawings, consult

http://rfetshp/Engineering_Support/search.htm

on the RFETS Intranet. The engineering drawing may be directly available on the Intranet at this site. If not, request the document from Site Design Document Control in Building 130 (966-5120). In addition to building materials, certain process equipment may contain asbestos as an insulator or protective covering, and the use of these must be verified through investigation of records and sampling.

2 Determine whether previous asbestos inspections have been conducted for the building, and decide if additional samples need to be taken. A Certified Asbestos Inspector must determine the usability of historical data.

3 Perform a building walkthrough. Physically tour the building, entering every physically accessible area and room, and note suspect or affected materials that indicate through either historical data or the asbestos inspector's experience the presence of asbestos. Generate a list which includes estimated quantities, utilizing the Asbestos Containing Material Inventory Worksheet (Appendix A). ***A Certified Asbestos Inspector may assume that a material is asbestos until proven otherwise.***

4 Determine the type, number, and location of samples to be collected from each building, and submit these data for approval by project management prior to initiation of sampling.

This report SHALL be in the form of a Sampling and Analysis Plan (SAP) or similar, suitable format determined by project management

Determine the number of samples for each homogeneous area by consulting EPA 40 CFR 763.86. This section of the Asbestos Hazard Emergency Response Act (AHERA) provides requirements for asbestos building inspections. Determine the necessary sample quantity by classifying materials based upon their physical condition of friability, and then by their general category (listed above). The generic categories of materials to be sampled for asbestos are listed below.

- **Thermal systems insulation**, such as that found on pipes or ducts, friable or non-friable, requires a minimum of three samples per homogeneous area greater than 6 linear feet, one sample from patches less than six linear or square feet (lf or ft²), and one from cementitious or "mudded" fittings. Each mechanical system, such as hot and cold domestic water, may have several homogeneous areas.
- **Surfacing materials** that are *friable*, such as fire-proofing or ceiling texture, require that a nine-section grid be applied to a blueprint of the area and samples be acquired from the center of randomly selected grids as per EPA 560/5-85-003a, *Asbestos in Buildings Simplified Sampling Scheme for Friable Surfacing Materials*. If the homogeneous area of friable surfacing material is less than 1,000 ft², three samples are needed, if between 1,000 and 5,000 ft², five samples are needed, if the area is over 5,000 ft², seven samples are needed. Grid spacing is only required for friable surfacing materials, which may include drywall joint compound, if suspected by the inspector to be friable.
- **Miscellaneous materials**, such as floor and ceiling tiles, wall filler, cementitious board ("Transite"), and electrical materials including cables, will be sampled according to the inspector's discretion, as outlined in EPA 40 CFR 763.86 c&d. For the purpose of this survey and based on the inspector's experience and discretion, a minimum of one sample of each suspected material in this category will be acquired.

Select sample locations randomly according to how each represents a homogeneous material. Since homogeneous areas are located throughout the building, the representation and number of samples are the driving factors rather than exact location of the sample in each room.

For quality control purposes, the AHERA "5% side-by-side" sampling rule will apply. For every 20 samples, take one duplicate directly adjacent to a selected sample.

NOTE: Exact locations are directly affected by radiological concerns. An RCT will accompany the inspector where necessary.

5 Having noted the location and number of samples required, **determine the method by which samples will be collected** (i.e., coring, chipping, settled dust sampling, etc.). Settled dust sampling for asbestos will be used as an optional aid to assessment of industrial hygiene issues such as work practices and engineering controls and Personal Protective Equipment (PPE) that would be used in the decommissioning, removal or demolition of structures. It does not replace and **SHALL NOT** be used in lieu of bulk sampling.

6 Obtain written Plan of the Day (POD) authorization from building management

7. Develop the Work Authorization Package Consult the IWCP Manual (MAN-071-IWCP) for guidance. The requirements may include, but are not limited to:

7

a) **Complete an Activity Screening Form** (available from the Project Manager),

b) **Conduct a Job Hazard Analysis** For this activity, a walkdown of all affected buildings **SHALL** be conducted, and walkdown personnel **SHALL** include a radiological engineer, member(s) of the sampling team, industrial hygiene representative, and the field supervisor, plus any other personnel required by the unique hazards of the job to assess the job hazard. This walkdown should also include activities listed in step 3 above,

c) **Ensure that an Activity Hazard Analysis and a Health and Safety Plan are completed** by the IH&S representative, field supervisor, or other qualified personnel as determined by the Project Manager,

IMPORTANT: *The Work Authorization Package must be approved and signed by all required personnel prior to initiation of sampling activities*

8 Contact Analytical Services Division (ASD) and submit a Sample Analysis Request Form (SARF). ASD will then assign RIN numbers for each sampling event and provide chain-of-custody forms. They will *not* provide sample labels for asbestos samples

9 Prepare a location map of sample locations and corresponding RIN and event numbers

10 Arrange for a Radiological Control Technician (RCT) to carry out pre-sampling and post-sampling contamination surveys as well as surveys of equipment and sample containers according to 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*, if these are required by Radiological Engineering

6.0 MATERIALS AND EQUIPMENT

6.1 Bulk Sampling

- "WondermakerTM" sampling tool
- "WondermakerTM" cutter sleeve and vial
- Chisel
- Hammer
- Razor knife
- Misting bottle containing water and surfactant
- Sample bags
- Adhesive tape
- Asbestos Sampling Log
- Chain of custody form
- Tamper-proof seals
- Preprinted, uniquely numbered labels for each sampling location
- Sharpie or other marking pen
- Disposable gloves
- Tweezers
- Map of area
- List of predetermined sampling locations

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- Tape measure or laser measuring device
- Camera, photo identification card, and camera pass, if photos are required
- Respirator with HEPA filter (as required)

6.2 Settled Dust Sampling (Horizontal Surfaces)

- Low volume sampler pump calibrated at greater than 2 liters per minute (lpm)
- Template that sequesters a 10 in² pattern
- Plastic filter cassette containing 25 mm mixed cellulose ester filter attached to the sampler pump
- A two inch section of Tygon tubing
- Asbestos Sample Log
- Chain of custody form
- Tamper-proof seals
- Preprinted, uniquely numbered labels for each sampling location
- Sharpie or other marking pen
- Disposable gloves
- Tweezers
- Map of area
- List of predetermined sampling locations
- Tape measure or laser measuring device
- Camera, photo identification card, and camera pass, if photos are required
- Respirator with HEPA filter (as required)

7.0 INSTRUCTION

7.1 Bulk samples

7.1.1 Sampling

NOTE *The sampler SHALL be a Certified Asbestos Inspector*

Certified Asbestos Inspector

1 Ensure that all required materials listed in Section 6.1 are in hand before proceeding to the survey area, as well as any required PPE, safety shoes, safety glasses, bump cap, or hard hat.

1.1 Be sure to don disposable gloves before initiation of sampling, and change them if they tear, puncture, become contaminated, or otherwise cease to provide adequate protection.

2 Visually verify sample location against written descriptions

Radiological Control Technician (RCT)

3 Obtain pre-media sampling 100 cm² total measurements at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

4 Obtain pre-media sampling 100 cm² removable swipes at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

5 Analyze swipes and record both results per 3-PRO-165-RSP 07 02, *Contamination Monitoring*

Requirements If a selected location is determined to exceed acceptable parameters, a second location must be selected. Should no radiologically acceptable location be found, a contaminated sample may be acquired and treated accordingly.

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding

Certified Asbestos Inspector

6 Secure a polyethylene drop cloth on the floor, or a baggie below the sample area but above the floor

7 Wet the immediate sample area with a mist of water and surfactant

8 Select a sampling tool, such as a hammer and chisel, razor knife, "Wondermaker™" or hole saw and acquire the sample, making sure to take a complete sample from the potential asbestos-containing material. **Each sample SHALL be a minimum of one cubic centimeter but no more than that necessary to be representative of the suspect material.** During this process, spray mist on the immediate surface as needed to preclude drying

9 Place the sample in a sealable container, such as a plastic bag or vial

10 Seal the container and place the appropriate pre-numbered label on the container. Write the sample number on the chain of custody form. Verify that the container is sealed.

Radiological Control Technician (RCT)

11 Obtain post-media sampling 100 cm² total measurements at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

12 Obtain post-media sampling 100 cm² removable swipes at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

13 Analyze swipes and record both results per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*. If the post-media sampling total measurements or swipes indicate that radiological contamination may have been removed with the sample, treat the sample as contaminated.

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding

Certified Asbestos Inspector

14 Document the sample description and location in the Asbestos Sample Log using an Asbestos Sampling Data Sheet (Appendix B)

15 Thoroughly clean the sampling tool using the mist sprayer and wipes

16 Patch the sample area utilizing silicone caulk, tar caulk (for roofs), or appropriate material such that structural integrity of sampled unit is maintained

17 When the area is sufficiently dry that an adhesive label will adhere, apply the sample number

label to the location sampled

18 Wet and wipe the sample container, drop cloth and immediate sample area. Carefully fold the drop cloth in toward the center, place it in a sealable bag, and seal the bag.

Radiological Control Technician (RCT)

19 If removable radiological contamination is suspected in the sampling area, assay the outside of the sample vials per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*. If the results of the assay indicate that radiological contamination exists, consult with Radiological Operations before proceeding.

20 Perform assays of sampling equipment before removal from a potentially contaminated area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*.

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, **cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding**.

Certified Asbestos Inspector

21 Photograph the sample identification area with photo identification card (*This step is optional. If photographs are required, a camera pass must first be obtained from the Photography Department, 966-2658. Alternatively, an individual already possessing a camera pass may be contacted to take the photo.*)

22 Provide the project representative with the Asbestos Sampling Log (see Appendix B), associated maps, photos, and other relevant documentation for the samples collected.

Field Supervisor

23 Record the following information in the Project Field Logbook on a daily basis:

- Date and time of sampling
- Name of person recording the entries
- Field team members (including subcontractors and visitors)
- Activity description (including building number, sampling locations)
- PPE Level
- Instruments including serial numbers and calibration data (unless recorded in separate log)
- Weather conditions (if applicable)
- Any deviations or special considerations

Reference the sample collection forms that are specified within the procedure (i.e. Asbestos Sampling Log, etc.)

24 Review Asbestos Sampling Log, Chain of Custody, and other documentation for completeness and accuracy. Record any deviations or special considerations in the Project Field Log.

7.1.2 Packaging

Certified Asbestos Inspector

1 Place all samples inside an additional plastic bag for transport, and place a tamper proof

custody seal over the ziplock bag opening such that the seal or bag will be broken to gain access to the sample. Sign and date the tamper-proof seal.

2 Complete the specific packaging requirements specified in 1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*, and 1-T97-Traffic-112, *Sample Packaging and Transfer*.

3 Complete the chain of custody form.

NOTE If samples are to be transported to the laboratory by someone other than the sampler, then the sampler must relinquish the samples by signing the chain of custody form and the person receiving the samples must sign for the samples. **Samples must be under chain of custody at all times.**

7.1.3 Shipment

Certified Asbestos Inspector

1 Transport the samples in the manner specified in 1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*, and 1-T97-Traffic-112, *Sample Packaging and Transfer* to the Analytical Services Division (ASD) representative for the job. Formally relinquish custody for the samples. **Samples must be under chain of custody at all times.**

NOTE If asbestos analysis is to be carried out on the RFETS site, a Property Release Evaluation (PRE, see Appendix C) is not required. If samples ARE to be transported off site, contact the Radiological Engineer in charge of preparing PREs.

7.1.4 Investigation-Derived Waste

Certified Asbestos Inspector

1 All PPE will be disposed of as per the requirements of the area under survey as well as any RWP applicable to the work.

2 The drop cloth will be disposed of as asbestos-containing waste.

7.2 Settled dust sampling

NOTE Settled dust sampling is carried out for Industrial Hygiene purposes in order to determine, for example, whether previous asbestos fiber releases have occurred in a particular area, and shall not under any circumstances substitute for bulk sampling for purposes of characterization in support of decommissioning activities.

7.2.1 Sampling

NOTE The sampler SHALL be a Certified Asbestos Inspector.

Certified Asbestos Inspector

1 Ensure that all required materials listed in Section 6.2 are in hand before proceeding to the survey area, as well as any required PPE, safety shoes, safety glasses, bump cap, or hard hat.

NOTE Be sure to don disposable gloves before initiation of sampling, and change them if they tear, puncture, become contaminated, or otherwise cease to provide adequate protection

- 2 Upon entering the survey area, locate the predetermined sampling location

Radiological Control Technician

- 3 Obtain pre-media sampling 100 cm² total measurements at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*, using an NE Electra DP-6 and/or equivalent instrumentation to assess radiological contamination **Do NOT perform a smear sample at this point.**

- 4 Record results per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements* If a selected location is determined to exceed acceptable parameters, a second location must be selected Should no radiologically acceptable location be found, a contaminated sample may be acquired and treated accordingly

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, **cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding**

Certified Asbestos Inspector

- 5 Position the 10 in² template at the sampling location

- 6 Slowly vacuum all surface areas inside template with Tygon hose which is attached to the pump Use a top-to-bottom motion to completely vacuum within the template, repeat using a side-to-side motion, and repeat again using a diagonal motion

NOTE. The configuration of the sampling apparatus should be Pump - 12 in of Tygon tubing - Mixed cellulose ester filter cartridge - 2 in of Tygon tubing Change the 2 in section of tubing and the cassette for each sample When assembling, be sure to remove (but do NOT discard) the plugs from the cassette

- 7 When finished, disconnect the cassette from the Tygon tubing, replace the plugs into the ends of the cassette, place the uniquely numbered, preprinted label on the cassette, and seal

- 8 **IMMEDIATELY** record the sample number and a detailed description of the sample in the Asbestos Sample Log using an Asbestos Sampling Data Sheet (Appendix B)

Radiological Control Technician (RCT)

- 9 Obtain post- sampling 100 cm² total measurements at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

- 10 Obtain post- sampling 100 cm² removable swipes at each sampling location within the sample area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

- 11 Analyze swipes and record both results per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements* If the post-media sampling total measurements or swipes indicate that radiological contamination may have been removed with the sample, treat the sample as contaminated

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, **cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding**

Certified Asbestos Inspector

12 Apply the uniquely numbered sample label to the location sampled

13 Photograph the sample identification area with photo identification card (***This step is optional** If photographs are required, a camera pass must first be obtained from the Photography Department, 966-2658. Alternatively, an individual already possessing a camera pass may be contacted to take the photo*)

14 If the samples are to leave the sight of the Asbestos Inspector, surrender chain of custody of all collected samples to the RCT assigned to the job, by having the RCT sign the chain of custody form. Be certain that date and time are noted

Radiological Control Technician (RCT)

15 Assay the outside of the sample cassettes per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*. If the results of the assay indicate that radiological contamination exists, consult with Radiological Operations before proceeding

16 Perform assays of sampling equipment before removal from a potentially contaminated area per 3-PRO-165-RSP 07 02, *Contamination Monitoring Requirements*

NOTE If any radiological measurement exceeds contamination limits stated in the Radiological Work Permit or in Table 2-2 in the Radiological Controls Manual, **cease operations and consult with Radiological Operations and with Radiological Engineering before proceeding**

Certified Asbestos Inspector

17 Provide the field supervisor with the Asbestos Sampling Log (Appendix B), associated maps, photos, and other documentation relevant to the samples collected

Field Supervisor

18 Record the following information in the Project Field Logbook on a daily basis

- Date and time of sampling
- Name of person recording the entries
- Field team members (including subcontractors and visitors)
- Activity description (including building number, sampling locations)
- PPE Level
- Instruments including serial numbers and calibration data (unless recorded in separate log)
- Weather conditions (if applicable)
- Any deviations or special considerations

Reference the sample collection forms that are specified within the procedure (i.e. Asbestos Sampling Log, etc.)

19 Review Asbestos Sampling Log, Chain of Custody, and other documentation for completeness and accuracy. Record any deviations or special considerations in the Project Field Log.

7.2.2 Packaging

Sampler

1 Place the cassette(s) inside of a ziplock bag, and place a tamper proof custody seal over the ziplock bag opening such that the seal or bag will be broken to gain access to the sample. Sign and date the tamper-proof seal.

2 Complete the specific packaging requirements specified in 1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*, and 1-T97-Traffic-112, *Sample Packaging and Transfer*.

3 Complete the chain of custody form.

NOTE: If samples are to be transported to the laboratory by someone other than the sampler, then the sampler must relinquish the samples by signing the chain of custody form and the person receiving the samples must sign for the samples. **Samples must be under chain of custody at all times.**

7.2.3 Transfer and Shipment

Certified Asbestos Inspector

1 Transport the samples in the manner specified in 1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*, and 1-T97-Traffic-112, *Sample Packaging and Transfer* to the Analytical Services Division (ASD) representative for the job. Formally relinquish custody for the samples. **Samples must be under chain of custody at all times.**

NOTE: If asbestos analysis is to be carried out on the RFETS site, a Property Release Evaluation (PRE, see Appendix C) is not required. If samples ARE to be transported off site, contact the Radiological Engineer in charge of preparing PREs.

7.2.4 Investigation-derived Waste

1 Cassettes are destroyed by the analytical laboratory.

2 All PPE will be disposed of as per the requirements of the area under survey as well as any RWP applicable to the work.

8.0 ANALYTICAL REQUIREMENTS

The analytical methodology for bulk asbestos samples is polarized light microscopy (PLM) capable of 400x magnification augmented with dispersion staining. This method is outlined in the EPA 600/R-93/116 methods for the determination of asbestos in building materials.

Bulk samples of suspect materials are examined for homogeneity, layers and preliminary fiber identification using a stereoscope at 40x magnification. Layers are separated and mounted on

slides Refractive index oils are applied to the slide according to a morphology match A light microscope equipped with two polarizing filters is used to observe seven specific optical characteristics of a sample at 400x magnification The presence or absence of the characteristics determines the type of asbestos, or if not asbestos, the type of fiber present in the sample The microscopist then visually estimates the percentage of asbestos or non-asbestos fibers in that layer Each layer is reported separately A layer or sample is determined to be an asbestos containing material if it contains more than one percent asbestos by this estimate The limit of detection for PLM is less than five microns

EPA NESHAP 40 CFR 61 mandates that the building manager (project manager) must be given the option of accepting results from PLM analysis of samples with asbestos percentages from trace (less than 1%) to 10%, or requesting point counting analysis Additionally, CCR 8 (iii) B6 (ii) requires that friable asbestos testing positive for asbestos but at a level of 1% or less **SHALL** be point counted If point counting is conducted, these results take precedence over the PLM results Point counting is a methodology that uses identical instrumentation, with the addition of a grid system on the stage The analyst is required to look at a minimum of 100 locations on eight different mounts, estimate the percentage of asbestos, and add these percentages for a statistical representation of the content

All asbestos samples shall be submitted to a laboratory recognized by the EPA National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos The field sample number shall appear on the field sampling form, the laboratory submittal form, and the container label The name of the laboratory, the date the samples were sent to the lab, and all personnel handling the sample from the time of collection to the time of arrival at the laboratory shall be recorded on a chain of custody form

9 0 REPORTING

Two types of data are generated during an inspection of asbestos in building materials the **field data** and the **laboratory data** The field data consists of research on the building history, observation and identification of installed building materials, and measurements to determine quantities The laboratory data consists of empirical observation through instrumentation, identification and quantification of sample information The number of measurements and the applicable statistical distribution **SHALL** be presented in tabular form, with additional graphical representation if applicable

The laboratory report **SHALL** contain the analyst's signature

10.0 DISPOSITION OF RECORDS

The following records are generated as a result of the implementation of this procedure

- Asbestos-containing Material Inventory Worksheet
- Asbestos Sampling Data Sheet
- Property Release Evaluation (PRE)
- Sampling and Analysis Request Form (SARF)
- Project Field Log

The collected Asbestos-containing Material Inventory Worksheets and Asbestos Sampling Data Sheets will comprise the Asbestos Sampling Log, which **SHALL** be assigned a unique document control number and be treated as a controlled document. Specifically, the both the Asbestos Sampling Log and the Project Field Log **SHALL** be considered In-process Quality Assurance (QA) Documents until the corresponding project is completed, at which point they **SHALL** be handled and controlled as QA Records (Non-WIPP/LL/LLM), in accordance with 1-V41-RM-001, Records Management Guidance for Records Sources, and 1-F78-ER-ARP 001, CERCLA Administrative Record Program. The PRE **SHALL** be handled and controlled as a QA Record (Non-WIPP/LL/LLM), and the SARF **SHALL** be handled and controlled as a Non-QA Record (Non-WIPP/LL/LLM).

Sampling data will be entered into the RFETS Soil and Water Database (SWD) utilizing the FieldCap menu, following the procedure in Sections 2, 3, and 4 of "SWD As-Built Detailed Design," RF/RMRS-98-203, Rev 2 1, Draft A, pp 4-13

11.0 REQUIREMENTS

All work **SHALL** be performed in accordance with

- MAN-071-IWCP, *RFETS IWCP Manual*
- PADC-96-00042, *RFETS Quality Assurance Manual*
- MAN-066-COOP, *RFETS Conduct of Operations Manual*
- Occupational Safety and Industrial Hygiene Program Manual (OS&IHPM)
- Radiological Safety Practices Manual (RSP 1 0)
- RFETS Radiological Controls Manual
- 94-ALARA-PLAN-0003, *RFETS ALARA Program Plan*

All workers **SHALL** be trained in accordance with

- PADC-1991-00793, *RFETS Training Users' Manual*

All records **SHALL** be managed in accordance with

- 1-V41-RM-001, *Records Management Guidance for Records Sources*
- 1-F78-ER-ARP 001, *CERCLA Administrative Record Program (40 CFR 800-825)*
- Kaiser-Hill Team Quality Assurance Program

All sample transportation, transfer, and packaging **SHALL** be in accordance with

- 1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*
- 1-T97-Traffic-112, *Sample Packaging and Transfer*

Documentation that each of these requirements has been met **SHALL** be included in the Project File

Minor deviations from this procedure that do not impact the regulations noted above are subject to the approval of the project manager and will be recorded on the sample log without modification to the procedure. The ARAR process will select those requirements which are either applicable or appropriate and relevant, or alternatively, administrative versus substantive

12.0 REFERENCES

1-V41-RM-001, *Records Management Guidance for Records and Sources*

1-F78-ER-ARP 001, *CERCLA Administrative Record Program*

1-T93-Traffic-110, *On-Site Transportation of Hazardous and Radioactive Materials Manual*

1-T97-Traffic-112, *Sample Packaging and Transfer*

5 CCR 1001-10

Emission Standards for Asbestos, Excerpted from Colorado Regulation No 8, *The Control of Hazardous Air Pollutants*, Part B, Emission Standards for Asbestos, November 30, 1996

EPA NESHAP 40 CFR 061

EPA 40 CFR 763

EPA 560/5-85-003a, *Asbestos in Buildings Simplified Sampling Scheme for Friable Surfacing Materials*

EPA 600/R-93/116, *Methods For the Determination of Asbestos in Building Materials*

MAN-072-OS&IHPM, Section 19, *Asbestos Management Program*

OSHA 29 CFR 1926 1101, *Asbestos Construction Standard*, August 10, 1994

PADC-94-01279, *RFETS Transportation Safety Manual*

RFETS, *SWD As-Built Detailed Design*, RF/RMRS-98-203, Rev 2 1, Draft A

Asbestos Containing Material Inventory Worksheet

Building Number _____ Room Number _____ Date _____

Pipe insulation

Type _____ Linear/sq ft _____ Fitting count _____

Type _____ Linear/sq ft _____ Fitting count _____

Type _____ Linear/sq ft _____ Fitting count _____

Type _____ Linear/sq ft _____ Fitting count _____

Duct insulation.

Type _____ Duct Size/app _____ Sq ft _____

Type _____ Duct Size/app _____ Sq ft _____

Type _____ Duct Size/app _____ Sq ft _____

Type _____ Duct Size/app _____ Sq ft _____

Other _____

SURFACE INVENTORY

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

MISCELLANEOUS INVENTORY

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

Location _____ Description _____ Sq ft _____

PREPARED BY _____ DATE _____

SIGNATURE _____

Job # _____ Name _____ Date _____

General Description of building/area _____

[illegible]

PREPARED BY _____ DATE _____

SIGNATURE _____

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SAMPLE

RELEASE EVALUATION FORM

Page 1 of 2

Release Evaluation No. _____ REV ONE EXTENDED- YES EXPIRES:
Charge No. _____

**PART I
ACKNOWLEDGMENT**

SENDER/CUSTODIAN

Description of Property/Waste/Sample To Be Released/Transferred

Current Location

Destination

New Recipient/Custodian

History/Process Knowledge

Has the specified material ever been in an RMMA/RBA/CA or contacted DOE controlled radioactive materials?

- 1) By signing below, I certify information provided in Part I of this release evaluation to be true and accurate
- 2) By signing below, I agree to comply with the specific requirements noted in Part II of this release evaluation

Sender/Custodian _____ Emp No _____ Date _____ Ext _____

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PART II

RADIOLOGICAL ENGINEERING

SPECIFIC REQUIREMENTS AND/OR COMMENTS

Evaluated _____ Emp No _____
Radiological Engineer

Date _____ Ext _____

APPROVAL FOR TRANSFER/SHIPMENT

Approved _____ Emp No _____ Date _____ Ext _____
Radiological Engineer

The samples specified in Part I of this release evaluation are being provided with authorization for transport as non-radioactive materials in accordance with Department of Transportation (49 CFR) regulations. This authorization for shipment does not constitute an unrestricted release.

SAMPLE RELEASE 990101-00881-036 REV ONE

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